

### **REMARKS**

Claims 1-41 remain pending in the present application. Claim 21 has been amended by this Amendment. It is respectfully submitted that the pending claims define allowable subject matter.

Claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pub. No. 2002/0032380 to Acker ("Acker '380"). Claims 33-36 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pub. No. 2002/095081 to Vilsmeier ("Vilsmeier"). Claims 6, 10-14, 16-17, and 24-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of U.S. Pat. No. 6,054,724 to Schmitz ("Schmitz"). Claims 7, 9 and 37-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of U.S. Pat. No. 6,499,488 to Hunter ("Hunter"). Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of U.S. Pat. No. 6,161,032 to Acker ("Acker '032"). Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Schmitz and Hunter. Claim 41 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Schmitz and further in view of U.S. Pub. No. 2002/0150215 to Barnes ("Barnes").

The Applicant respectfully traverses the outstanding rejections for the reasons set forth hereafter.

#### **35 U.S.C. § 102(a) Rejections Based On Acker '380**

Claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 were rejected under 35 U.S.C. § 102(b) as being anticipated by Acker '380.

As an initial matter, the Applicant respectfully submits that Acker '380 is not prior art under

35 U.S.C. § 102(b) to any of claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 of the pending application. The pending application claims priority to provisional application Serial No. 60/426,314 (“the provisional application”), which was filed on November 14, 2002 and a copy of which is attached as Exhibit A. Support for claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 of the pending application is found in the provisional application, *see, e.g.*, pp. 3-9; Figs. 1-5. Acker ‘380 was first published March 14, 2002, or less than one year before the filing of the provisional application. Therefore, the Applicant respectfully submits that Acker ‘380 is not prior art to pending claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 under Sec. 102(b), and the Applicant respectfully requests that the rejections made with respect to Acker ‘380 be withdrawn.

Furthermore, even assuming, *arguendo*, that Acker ‘380 is prior art, the Applicant respectfully submits that claims 1-5, 10, 18-23, 26-28, 30-32, and 39-40 are not anticipated by Acker ‘380 for the reasons set forth hereafter.

#### Claims 1-5

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Acker ‘380. The Applicant respectfully traverses this rejection.

Acker ‘380 relates to a field transducer for determining position or orientation in a medical instrument locating system that is placed at an arbitrary position or orientation with respect to a feature of the instrument. The transducer may be attached at an arbitrary location on the instrument, or the instrument may be bent as desired by the user. A transform relating position or orientation of a feature of the instrument to position or orientation of the transducer is

obtained in a calibration cycle. A field transducer may be part of a disposable unit which is irrevocably altered when used with an instrument, so that the unit cannot be reused. Acker '380 at Abstract.

The Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 1, and, therefore, claims 1-5 are not anticipated by Acker '380. First, Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices" as recited in claim 1. None of the devices shown in Figures 3 and 4 and described in claims 1 and 7 of Acker '380 are configured to carry first and second localizing devices. Rather, the devices are configured only to carry one specific transducer, and in fact, the single specific transducer is permanently affixed to the devices. *See* Acker '380 at ¶ 28 ("A disposable device in accordance with one embodiment includes a field transducer 30 permanently mounted in a body 32."); *see also* Figs. 3 and 4. Because Acker '380 does not teach or suggest a fixator that is configured to carry first and second localizing devices, claims 1-5 are not anticipated by Acker '380.

Second Acker '380 does not teach or suggest "said second localizing device at said first fixator being attachable to said instrument and said first localizing at said second fixator being attachable to said first fixator" as recited in claim 1. While Acker '380 discloses a device 28 in Fig. 1 that carries a field transducer 30 and is capable of being mounted to a probe 46, the transducer 30 itself is not capable of being directly attached to the probe 46, the system disclosed in Acker '380 does not allow for a transducer at one fixator to be attached to another fixator, and the device 28 is not capable of having a second transducer attached to it. *See* Acker '380 at ¶ 28

("A disposable device in accordance with one embodiment includes a field transducer 30 permanently mounted in a body 32."). Likewise, the transducers 52 shown in the frame in Fig. 3 of Acker '380 are not attachable to the probe 46, nor are the transducers 52 mounted to fixators that are capable of having second transducers attached thereto.

Because Acker '380 does not teach or suggest all of the limitations of claim 1, the Applicant respectfully submits that claims 1-5 are not anticipated by Acker '380.

Claim 10

Claim 10 was rejected under 35 U.S.C. § 102(b) as being anticipated by Acker '380. The Applicant respectfully traverses this rejection.

First, the Office Action fails to provide any analysis in support of its proposition that claim 10 is anticipated by Acker '380, and therefore the Applicant respectfully submits that the rejection should be withdrawn.

Second, the Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 10, and, therefore, claim 10 is not anticipated by Acker '380. Acker '380 does not teach or suggest a "C-arm including . . . an electromagnetic receiver," let alone a receiver at a C-arm communicating with a transmitter at a fixator to determine the position of a receiver at a first fixator relative to the position of the receiver on the C-arm, as recited in claim 10. Furthermore, Acker '380 does not teach or suggest a "first fixator joined to [a patient's] body . . . and being configured to carry an electromagnetic receiver and an electromagnetic transmitter" as recited in claim 10. Acker '380 does not disclose a fixator joined to the body of a patient, and as discussed above, the devices disclosed for carrying transducers in Acker '380 are

not capable of carrying two different transducers, *i.e.*, an electromagnetic receiver and an electromagnetic transmitter. Finally, as discussed above, Acker '380 does not teach or suggest a "receiver at said first fixator being attachable to said surgical instrument and said transmitter at said second fixator being attachable to said first fixator" as recited in claim 10. Again, the transducers disclosed in Acker '380 are not directly attachable to surgical instruments, nor are any of the transducers disclosed in Acker '380 capable of being detached from one fixator and reattached to another fixator.

Because Acker '380 does not teach or suggest all of the limitations of claim 10, the Applicant respectfully submits that claim 10 is not anticipated by Acker '380.

#### Claims 18-19

The Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 18, and, therefore, claims 18-19 are not anticipated by Acker '380. First, Acker '380 does not teach or suggest "removing said first localizing device from said first fixator and attaching said first localizing device to an instrument proximate said area of interest" as recited in claim 18. None of the devices (28, 52) shown in Acker '380 is configured to have its transducer removed, *see* Acker '380 at ¶ 28 ("A disposable device in accordance with one embodiment includes a field transducer 30 permanently mounted in a body 32."). Furthermore, while the device 28 carrying the transducer 30 may be mounted to the probe 46 in Acker '380, the transducer 30 cannot be removed from the device 28 and then be directly attached to the probe 46. Therefore, Acker '380 does not teach or suggest removing the first localizing device from the first fixator and attaching the first localizing device to an instrument as recited in claim

18.

Second, Acker '380 does not teach or suggest "removing said second localizing device from said second fixator and attaching said second localizing device to said first fixator" as recited in claim 18. While Acker '380 discloses transducers 30 mounted on devices 28, Acker '380 does not disclose that the transducers 30 are removable from the devices 28 or that the transducers 30 are attachable to other fixators. Therefore, Acker '380 does not teach or suggest removing the second localizing device from the second fixator and attaching the second localizing device to the first fixator as recited in claim 18.

Because Acker '380 does not teach or suggest all of the limitations of claim 18, the Applicant respectfully submits that claims 18-19 are not anticipated by Acker '380.

Claim 20

The Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 20, and, therefore, claim 20 is not anticipated by Acker '380.

Acker '380 does not teach or suggest "calculating the position of a receiver attached to the fixator relative to a transmitter attached to the fixator" as recited in claim 20. While Acker '380 discloses a device 28 that includes a transducer 30 that is "permanently mounted" thereto, *see* Acker '380 at ¶ 28, and transducers 52 "mounted" in a frame, *see* Acker '380 at ¶ 30, Acker '380 does not teach or suggest that a single fixator includes a receiver attached thereto and a transmitter attached thereto or calculating the position of the receiver attached to the fixator relative to the transmitter attached to the fixator. Furthermore, Acker '380 does not teach or suggest "attaching a receiver to the fixator," "removing the receiver from the fixator," or

“attaching a transmitter to the fixator” as recited in claim 20. Again, the transducer 30 of Acker ‘380 is “permanently mounted” to the device 20, so Acker ‘380 teaches away from removing the transducer 30 from a fixator or attaching the transducer 30 to another fixator. Also, Acker ‘380 does not teach or suggest that the transducers 52 can be removed from, or attached to, different fixators. Therefore, because Acker ‘380 does not teach or suggest all of the limitations of claim 20, the Applicant respectfully submits that claim 20 is not anticipated by Acker ‘380.

Claim 21

The Applicant respectfully submits that Acker ‘380 does not teach or suggest all of the limitations of claim 21, and, therefore, claim 21 is not anticipated by Acker ‘380.

Acker ‘380 does not teach or suggest “a first fixator configured to be connected to a patient’s body at a first point proximate an area of interest, said first fixator being configured to carry a first localizing device” as recited in claim 21. While Acker ‘380 discloses a device 28 for carrying a transducer 30, the device 28 is not configured to be connected to a probe 46, not to a patient’s body. Also, Acker ‘380 does not teach or suggest a “second instrument configured to carry a fourth localizing device” or determining “the position of said fourth localizing device on said second instrument . . . relative to said first localizing device on said first fixator and to the position of said third localizing device on said first instrument” as recited in claim 21. While the system disclosed in Acker ‘380 relates to tracking a probe 62 with the field transducer 30, Acker ‘380 does not teach or suggest a method for calculating the position of a second instrument relative to a fixator or a first instrument. Therefore, because Acker ‘380 does not teach or

suggest all of the limitations of claim 21, the Applicant respectfully submits that claim 21 is not anticipated by Acker '380.

Claims 22-23, 26-28, 30-32

The Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 22, and, therefore, claims 22-23, 26-28, 30-32 are not anticipated by Acker '380.

Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices, such that the positions of said first and second localizing devices on said first fixator are fixed and known relative to one another" as recited in claim 22. As discussed above, Acker '380 does not disclose a fixator that is capable of carrying two distinct localizing devices. Furthermore, Acker '380 does not disclose a single fixator carrying two localizing devices whose respective positions on the single fixator are known relative to one another. Acker '380 also does not teach or suggest "said first fixator being configured to carry [a] second localizing device]" and "said second fixator being configured to carry said second localizing device" as recited in claim 22. As discussed above, Acker '380 does not teach or suggest a fixator that is configured to carry a localizing device that is previously carried on another fixator. In other words, Acker' 380 does not teach or suggest a second localizer that can be carried by either of two different fixators.

Also, Acker '380 does not teach a "second instrument configured to carry a fourth localizing device" or determining "the position of said fourth localizing device on said second instrument . . . relative to said second localizing device on said first fixator [and] relative to said



position of the third localizing device on said first instrument” as recited in claim 22. While the system disclosed in Acker ‘380 relates to tracking a probe 62 with the field transducer 30, Acker ‘380 does not teach or suggest a method for calculating the position of a second instrument relative to a fixator or a first instrument.

Finally, Acker ‘380 does not teach or suggest “said third localizing device [of the first instrument] communicating with said second localizing device on said second fixator” and “said fourth localizing device [of the second instrument] communicating with said second localizing device at said first fixator” as recited in claim 22. Acker ‘380 simply does not disclose using a second localizing device on a second fixator to communicate with a first instrument and also using the same second localizing device on the first fixator to communicate with a second instrument. Again, Acker ‘380 does not teach or suggest moving a localizing device from one fixator to another, let alone using the localizing device at one fixator to communicate with a first instrument and using the same localizing device at a second fixator to communicate with a second instrument.

Therefore, because Acker ‘380 does not teach or suggest all of the limitations of claim 22, the Applicant respectfully submits that claims 22, 23, 26-28, 30-32 are not anticipated by Acker ‘380.

Applicant also notes that the Detailed Action of the Office Action does not provide any basis for rejecting pending claim 29. Because claim 29 depends from claim 22 and, as shown above, Acker ‘380 does not teach or suggest all the limitations of claim 29, the Applicant respectfully submits that claim 29 is in condition for allowance.

Acker '380 does not teach or suggest all the limitation of claim 30. Acker '380 does not teach or suggest "said second fixator is secured to a patient's body by connectable strap" as recited in claim 30. While Acker '380 discloses a band for use with device 128, the band is not for securing the device 128 to a patient's body. Rather, the band "serve[s] to lock the body 132 of the device to the instrument or probe." *See* Acker '380 at ¶ 41. Similarly, device 28 is configured only to be attached to an instrument or probe 46, not the human body. *See* Acker '380 at ¶ 33. Therefore, because Acker '380 does not teach or suggest all of the limitations of claim 30, the Applicant respectfully submits that claim 30 is not anticipated by Acker '380.

Acker '380 does not teach or suggest all the limitation of claims 31. Acker '380 does not teach or suggest "wherein said known relationship between said first and second localizing devices at said first fixator is determined by manufacture of said first fixator" as recited in claim 31. The Office Action states that this limitation is shown at Figure 2 of Acker '380, however, the probe 46 of Fig. 2 only carries a single transducer 30. The probe 46 of Acker '380 does not carry first and second localizing devices, let alone does Acker '380 disclose a known relationship between first and second localizing devices at the probe 46. Therefore, because Acker '380 does not teach or suggest all of the limitations of claim 31, the Applicant respectfully submits that claim 31 is not anticipated by Acker '380.

Acker '380 does not teach or suggest all the limitation of claims 32. Acker '380 does not teach or suggest "wherein said known relationship between said first and second localizing devices at said first fixator is determined by a calibration procedure" as recited in claim 32. As discussed above, the probe 46 of Fig. 2 shown in Acker '380 only carries a single transducer 30.

The probe 46 of Acker '380 does not carry first and second localizing devices, let alone does Acker '380 disclose a known relationship between first and second localizing devices at the probe 46. Therefore, because Acker '380 does not teach or suggest all of the limitations of claim 32, the Applicant respectfully submits that claim 32 is not anticipated by Acker '380.

Claims 39-40

The Applicant respectfully submits that Acker '380 does not teach or suggest all of the limitations of claim 39, and, therefore, claims 39-40 are not anticipated by Acker '380.

Acker '380 does not teach or suggest "determining the position of a receiver attached to the fixator relative to a transmitter attached to the fixator" as recited in claim 39. As discussed above, Acker '380 does not disclose a fixator that is capable of carrying two distinct localizing devices. Furthermore, Acker '380 does not disclose a single fixator carrying two localizing devices whose respective positions on the single fixator are known relative to one another.

Acker '380 does not teach or suggest "attaching a receiver to the fixator," "removing said receiver from said fixator," or "attaching a transmitter to said fixator" as recited in claim 39. While Acker '380 discloses a transducer 30 "permanently mounted" to a device 28, *see* Acker '380 at ¶ 28, Acker '380 does not disclose anywhere the processes of attaching a receiver to, or removing a receiver from, a fixator or attaching a transmitter to a fixator. Rather, the transducers disclosed in Acker '380 are fixed to devices.

Acker '380 does not teach or suggest "determining the position of said second surgical instrument relative to said transmitter attached to said fixator" and "determining the position of said first surgical instrument relative to said second surgical instrument" as recited in claim 39.

While the system disclosed in Acker '380 relates to tracking a probe 62 with the field transducer 30, Acker '380 does not teach or suggest a method for calculating the position of a second instrument relative to a transmitter on a fixator or a first instrument.

Therefore, because Acker '380 does not teach or suggest all of the limitations of claim 39, the Applicant respectfully submits that claims 39-40 are not anticipated by Acker '380.

**35 U.S.C. § 102(a) Rejections Based On Vilsmeier**

Claims 33-36 were rejected under 35 U.S.C. § 102(b) as being anticipated by Vilsmeier.

As an initial matter, the Applicant respectfully submits that Vilsmeier is not prior art under 35 U.S.C. § 102(b) to any of claims 33-36 of the pending application. The pending application claims priority to provisional application Serial No. 60/426,314 ("the provisional application"), which was filed on November 14, 2002 and a copy of which is attached as Exhibit A. Support for claims 33-36 of the pending application is found in the provisional application, *see, e.g.*, pp. 3-9; Figs. 1-5. Vilsmeier was first published on July 18, 2002, or less than one year before the filing of the provisional application. Therefore, the Applicant respectfully submits that Vilsmeier is not prior art to pending claims 33-36 under Sec. 102(b), and the Applicant respectfully requests that the rejections made with respect to Vilsmeier be withdrawn.

Furthermore, even assuming, *arguendo*, that Vilsmeier is prior art, the Applicant respectfully submits that claims 33-36 are not anticipated by Vilsmeier for the reasons set forth hereafter.

Vilsmeier relates to a Neuro-navigation system comprising a reflector referencing system including passive reflectors and a marker system with markers or landmarks. The reflectors as

well as the markers as regards their shape, size and material selection as well as their arrangement or attachment on the parts of the body to be operatively treated and on the surgical instruments are configured so that mapping their locations is substantially facilitated or is able to take place more accurately positioned by a computer/camera unit having a graphic display terminal as well as the operative treatment with the aid of this unit. Optionally a surgical microscope, an ultrasonic diagnostic system as well as a calibration procedure may be integrated in the Neuro-navigation system. Vilsmeier at Abstract.

Vilsmeier does not teach or suggest “a fixator” as recited in claim 33. The Office Action states that the invention of claim 33 is disclosed in the abstract and Figs. 2-4 of Vilsmeier. *See* Nov. 23, 2007 Office Action at 8. The object to which this citation refers, however, is not a fixator, but is a pointer 20. The pointer 20 disclosed in Vilsmeier is not used to be fixed to anything, rather, the pointer 20 is used to enter the tip 23 of the pointer 20 into the centerpoints of multiple landmark prominences 80 so that the system disclosed in Vilsmeier is able to identify each of the landmarks concerned and allow a monitor to display the position of the tip of an instrument. *See* Vilsmeier at ¶ 0102 and Figs. 1-4. In other words, the pointer 20 is used to calibrate an instrument among the multiple landmark prominences 80, *i.e.*, the pointer 20 is moved about from prominence to prominence, and thus is not at any time “fixated” to anything.

Therefore, because Vilsmeier does not teach or suggest all of the limitations of claim 33, the Applicant respectfully submits that claims 33-36 are not anticipated by Vilsmeier.

Furthermore, Vilsmeier does not teach or suggest all the limitations of claim 35 or claim 36. Vilsmeier does not teach or suggest “said known relationship between said first and second

localizing devices at said fixator is determined by a calibration procedure” as recited in claim 35 or “said calibration procedure comprises the calculation of the positions of said first and second localizing devices by a surgical tracking system” as recited in claim 36. While Vilsmeier does disclose that “the spacing and shape of these reflectors 21 and 22 are known to the computer unit 11,” *see* Vilsmeier at ¶ 0083, and that the “three reflectors 32, 33 and 34 hav[e] a characteristical arrangement which is assigned exclusively to this adapter,” *see* Vilsmeier at ¶ 0084, Vilsmeier does not teach anywhere that the relationship of the reflectors on the instruments shown in Figs. 2-4 is determined by a calibration procedure or by calculating the positions of the reflectors by a surgical tracking system. Rather, the relationship of the reflectors in Vilsmeier is only described as being determined by a “characteristical arrangement” or by known spacing. Therefore, Vilsmeier does not teach or suggest all of the limitations of claim 35 or claim 36, and the Applicant respectfully submits that claims 35 and 36 are not anticipated by Vilsmeier.

### **35 U.S.C. § 103(a) Rejections**

#### **Acker ‘380 In View Of Schmitz**

Claims 6, 10-14, 16-17, and 24-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker ‘380 in view of Schmitz. The Applicant respectfully traverses these rejections.

#### **Claim 6**

The Applicant respectfully submits that the combination of Acker ‘380 and Schmitz does not teach or suggest all of the limitations of claim 6, and, therefore, claim 6 is not obvious over Acker ‘380 and Schmitz.

Schmitz is related to a method of position detection in X-ray imaging, and to a device for carrying out such a method by means of an X-ray apparatus, a detector device, including at least two detector elements, and an indicator device. The detector device is mounted on the X-ray apparatus and the indicator device is provided so as to be stationary on the object to be examined or stationary relative to the object to be examined. Also described is a method of position detection in X-ray imaging by means of such a device. Schmitz at Abstract.

As discussed above with respect to claim 1, Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices" or a "second localizing device at said first fixator being attachable to said instrument and said first localizing at said second fixator being attachable to said first fixator," as recited in claim 1. Likewise, Schmitz does not teach or suggest these limitations. Therefore, the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claim 6, and thus claim 6 is not obvious over Acker '380 in view of Schmitz.

#### Claims 10-14, 16-17

The Applicant respectfully submits that the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claims 10-14 and 16-17, and, therefore, claims 10-14 and 16-17 are not obvious over Acker '380 and Schmitz.

As discussed above with respect to claim 10, Acker '380 does not teach or suggest a "C-arm including . . . an electromagnetic receiver," a "first fixator joined to [a patient's] body . . . and being configured to carry an electromagnetic receiver and an electromagnetic transmitter," or a "receiver at said first fixator being attachable to said surgical instrument and said transmitter

at said second fixator being attachable to said first fixator” as recited in claim 10. While Schmitz discloses a C-arm, Schmitz does not teach or suggest a “first fixator joined to [a patient’s] body . . . and being configured to carry an electromagnetic receiver and an electromagnetic transmitter,” or a “receiver at said first fixator being attachable to said surgical instrument and said transmitter at said second fixator being attachable to said first fixator” as recited in claim 10. Therefore, the combination of Acker ‘380 and Schmitz does not teach or suggest all of the limitations of claim 10, and thus claims 10-14 and 16-17 are not obvious over Acker ‘380 in view of Schmitz.

With respect to claim 12, neither Acker ‘380 or Schmitz teaches or suggests “wherein the position of said transmitter on said first fixator can be determined relative to the position of said receiver on said first fixator in order that the position of said transmitter on said first fixator relative to said receiver at said C-arm may be determined.” As discussed above, Acker ‘380 does not disclose a fixator that carries both a transmitter and a receiver or a system for determining the position of the transmitter on the fixator relative to the position of the receiver on the fixator. Schmitz likewise fails to disclose a fixator that carries both a transmitter and a receiver or a system for determining the position of the transmitter on the fixator relative to the position of the receiver on the fixator. Therefore, the combination of Acker ‘380 and Schmitz does not teach or suggest all of the limitations of claim 12, and thus claim 12 is not obvious over Acker ‘380 in view of Schmitz.

With respect to claim 16, neither Acker ‘380 or Schmitz teaches or suggests “said second fixator comprises a post and lock spring for securing said transmitter thereto and connectable straps for externally securing said second fixator to the patient’s body.” While Acker ‘380



discloses a band for use with device 128, the band is not for securing the device 128 to a patient's body. Rather, the band "serve[s] to lock the body 132 of the device to the instrument or probe." See Acker '380 at ¶ 41. Similarly, device 28 is configured only to be attached to an instrument or probe 46, not the human body. See Acker '380 at ¶ 33. Also, while Acker '380 refers generally to "locks," Acker '380 does not disclose using a post and lock spring for securing a transmitter to a fixator. Likewise, Schmitz does not teach or suggest these limitations of claim 16. Therefore, the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claim 16, and thus claim 16 is not obvious over Acker '380 in view of Schmitz.

With respect to claim 17, neither Acker '380 or Schmitz teaches or suggests "said first fixator comprises a post and lock spring for securing said transmitter thereto and a connection block for securing said receiver thereto." Again, as discussed above, Acker '380 does not disclose using a post and lock spring for securing a transmitter to a fixator. Furthermore, Acker '380 does not anywhere teach or suggest using a connection block to secure a receiver to the fixator. Likewise, Schmitz does not teach or suggest these limitations of claim 17. Therefore, the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claim 17, and thus claim 17 is not obvious over Acker '380 in view of Schmitz.

#### Claims 24-25

The Applicants respectfully submit that the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claims 24-25, and, therefore, claims 24-25 are not obvious over Acker '380 and Schmitz.

As discussed above with respect to claim 22, Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices, such that the positions of said first and second localizing devices on said first fixator are fixed and known relative to one another," "said second fixator being configured to carry said second localizing device," a "second instrument configured to carry a fourth localizing device," determining "the position of said fourth localizing device on said second instrument . . . relative to said second localizing device on said first fixator [and] relative to said position of the third localizing device on said first instrument," "said third localizing device [of the first instrument] communicating with said second localizing device on said second fixator," or "said fourth localizing device [of the second instrument] communicating with said second localizing device at said first fixator," as recited in claim 22. Likewise, Schmitz does not teach or suggest these limitations of claim 22. Therefore, the combination of Acker '380 and Schmitz does not teach or suggest all of the limitations of claim 22, and thus claims 24-25 are not obvious over Acker '380 in view of Schmitz.

Acker '380 In View Of Hunter

Claims 7, 9, and 37-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Hunter. The Applicant respectfully traverses these rejections.

Claim 7

The Applicant respectfully submits that the combination of Acker '380 and Hunter does not teach or suggest all of the limitations of claim 7, and, therefore, claim 7 is not obvious over Acker '380 and Hunter.

Hunter is related to an integrated surgical anchor/localization sensor. The anchor is

adapted to be secured to an anatomical structure and contains a sensor housing. A receiver is located within the sensor housing and is adapted to sense reference signals generated by a surgical guidance system. A transmitter, connected to the receiver, conveys to a processor signals received by the receiver, so that the signals transmitted by the receiver are indicative of a current position of the anchor. Hunter at Abstract.

As discussed above with respect to claim 1, Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices" or a "second localizing device at said first fixator being attachable to said instrument and said first localizing at said second fixator being attachable to said first fixator," as recited in claim 1. Likewise, Hunter does not teach or suggest these limitations. Therefore, the combination of Acker '380 and Hunter does not teach or suggest all of the limitations of claim 1, and thus claim 7 is not obvious over Acker '380 in view of Hunter.

#### Claim 9

The Applicant respectfully submits that the combination of Acker '380 and Hunter does not teach or suggest all of the limitations of claim 9, and, therefore, claim 9 is not obvious over Acker '380 and Hunter.

Neither Acker '380, nor Hunter, teaches or suggests a "fixator being capable of attaching a transmitter and receiver in a fixed and known position relative to one another" as recited in claim 9. While Acker '380 discloses a transducer 30 that is permanently mounted to a device 28 that can be mounted to a probe 46, the device 28 is not capable of attaching transducers thereto, let alone capable of having two transducers attached thereto and located at known positions

relative to one another. Similarly, while Hunter discloses a receiver and/or transmitter on a surgical screw, Hunter does not teach or suggest that the screw is capable of attaching the receiver and/or transmitter thereto, let alone having a transmitter and a receiver attached thereto in known positions relative to each other.

Furthermore, neither Acker '380, nor Hunter, teaches or suggests "a second surgical instrument with an attached receiver" or a "means for determining the position of the second surgical instrument relative to the fixator with an attached receiver" as recited in claim 9. While the system disclosed in Acker '380 relates to tracking a probe 62 with the field transducer 30, Acker '380 does not teach or suggest using a second instrument with an attached transducer or a means for determining the position of the second instrument relative to a fixator. Likewise, Hunter does not teach or suggest this limitation.

Finally, neither Acker '380, nor Hunter, teaches or suggests a "means for calculating the position of the first surgical instrument relative to the second surgical instrument" as recited in claim 9. Again, while the system disclosed in Acker '380 relates to tracking a probe 62 with the field transducer 30, Acker '380 does not teach or suggest using a second instrument with an attached transducer, let alone a means for calculating the position of a first instrument relative to a second instrument. Likewise, Hunter does not teach or suggest this limitation.

Therefore, the combination of Acker '380 and Hunter does not teach or suggest all of the limitations of claim 9, and thus claim 9 is not obvious over Acker '380 in view of Hunter.

Claim 37-38

The Applicant respectfully submits that the combination of Acker '380 and Hunter does

not teach or suggest all of the limitations of claim 37-38, and, therefore, claims 37-38 are not obvious over Acker '380 and Hunter.

Neither Acker '380, nor Hunter, teaches or suggests a "fixator being configured to carry a transmitter and receiver in a fixed and known position relative to one another" as recited in claim 37. While Acker '380 discloses a transducer 30 that is permanently mounted to a device 28 that can be mounted to a probe 46, the device 28 is not configured to carry two transducers, let alone configured to carry two transducers at known positions relative to one another. Similarly, while Hunter discloses a receiver and/or transmitter on a surgical screw, Hunter does not teach or suggest that the screw is configured to carry the receiver and transmitter in a fixed or known position relative to one another.

Furthermore, neither Acker '380, nor Hunter, teaches or suggests "a second surgical instrument with an attached transmitter" or a "means for determining the position of the second surgical instrument relative to the fixator with an attached receiver" as recited in claim 37. While the system disclosed in Acker '380 relates to tracking a probe 62 with the field transducer 30, Acker '380 does not teach or suggest using a second instrument with an attached transducer or a means for determining the position of a second instrument relative to a fixator. Likewise, Hunter does not teach or suggest this limitation.

Finally, neither Acker '380, nor Hunter, teaches or suggests a "means for calculating the position of the first surgical instrument relative to the second surgical instrument" as recited in claim 37. Again, while the system disclosed in Acker '380 relates to tracking a probe 62 with the field transducer 30, Acker '380 does not teach or suggest using a second instrument with an

attached transducer, let alone a means for calculating the position of a first instrument relative to a second instrument. Likewise, Hunter does not teach or suggest this limitation.

Therefore, the combination of Acker '380 and Hunter does not teach or suggest all of the limitations of claim 37, and thus claims 37-38 are not obvious over Acker '380 in view of Hunter.

Acker '380 In View Of Acker '032

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Acker '032. The Applicant respectfully traverses this rejection.

Acker '032 relates to magnetic field sensors used to detect the position and orientation of medical probes within the body of a patient. The sensors are adapted for use as independently positionable reference transducer assemblies. Acker '032 at Abstract.

As discussed above with respect to claim 1, Acker '380 does not teach or suggest a "first fixator being configured to carry first and second localizing devices" or a "second localizing device at said first fixator being attachable to said instrument and said first localizing at said second fixator being attachable to said first fixator" as recited in claim 1. Likewise, Acker '032 does not teach or suggest these limitations. Therefore, the combination of Acker '380 and Acker '032 does not teach or suggest all of the limitations of claim 8, and thus claim 8 is not obvious over Acker '380 in view of Acker '032.

Acker '380 In View Of Schmitz and Hunter

Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Schmitz and Hunter. The Applicant respectfully traverses this rejection.

The Applicant respectfully submits that the combination of Acker '380, Schmitz, and Hunter does not teach or suggest all of the limitations of claim 15, and, therefore, claim 15 is not obvious over Acker '380, Schmitz, and Hunter. As discussed above with respect to claim 10, neither Acker '380, nor Schmitz, teaches or suggests a "receiver at said first fixator being attachable to said surgical instrument and said transmitter at said second fixator being attachable to said first fixator" as recited in claim 10. Likewise, Hunter does not teach or suggest this limitation. Therefore, the combination of Acker '380, Schmitz, and Hunter does not teach or suggest all of the limitations of claim 10, and thus claim 15 is not obvious over Acker '380 in view of Schmitz and Hunter.

Acker '380 In View Of Schmitz and Barnes

Claim 41 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Acker '380 in view of Schmitz in further view of Barnes. The Applicant respectfully traverses these rejections.

The Applicant respectfully submits that the combination of Acker '380, Schmitz, and Barnes does not teach or suggest all of the limitations of claim 41, and, therefore, claim 41 is not obvious over Acker '380, Schmitz, and Barnes.

Barnes relates to a mobile radiographic unit with x-ray scatter control. X-ray scatter control is provided through the alignment of the system with the focal line of an anti-scatter grid. The system comprises an x-ray source assembly, a tube housing mounting, an automatic measuring means, a motion control means and a processing means in communication with the automatic measuring system and the motion control system. Barnes at Abstract.

None of Acker '380, Schmitz, and Barnes teaches or suggests the steps of "calculating the difference between said first and second positions of said first localizing device relative to said second localizing device and the difference between said first and second positions of said third localizing device relative to said second localizing device" or "calculating the position of said third localizing device relative to said first localizing device if said difference is less than a predetermined threshold" as recited in claim 41. While Acker '380 discloses detecting the characteristics of field transmission between elements of pairs of transducers, *see* Acker '380 at ¶ 30, Acker '380 does not anywhere disclose calculating the difference between the first and second positions of one localizing device relative another localizing device, let alone calculating the position of a third localizing device relative to the first localizing device if the difference is less than a predetermined threshold. Also, while Barnes discloses measuring the position and orientation of fiducial markers 50, *see* Barnes at ¶ 37, and matching the gains of foreground and background images of LEDs, *see* Barnes at ¶ 42, Barnes does not teach or suggest calculating the difference between first and second positions of a first LED relative to a second LED. Furthermore, Barnes does not teach or suggest the subsequent step of calculating the position of a third localizing device relative to the first localizing device if the difference is less than a predetermined threshold. Likewise, Schmitz does not disclose these limitations of claim 41.

Furthermore, none of Acker '380, Schmitz, and Barnes teaches or suggests the step of "indicating an error if said difference is greater than said predetermined threshold" as recited in claim 41. The Office Action acknowledges that neither Acker '380, nor Schmitz, teaches or suggests this limitation. Furthermore, Barnes discloses displaying an error light, but the light



only goes of if a final list of LED locations does not include exactly four LEDs, *see* Barnes at ¶ 43, not because a difference between first and second positions of a localizing device relative to a second localizing device is greater than a predetermined threshold, as recited in claim 41. In fact, in Barnes, the locations of the LEDs are determined by subtracting a background image from a foreground image, not by calculating the difference between first and second positions of a first LED relative to a second LED.

Therefore, the combination of Acker '380, Schmitz, and Barnes does not teach or suggest all of the limitations of claim 41, and thus claim 41 is not obvious over Acker '380 in view of Schmitz and Barnes.

### **Conclusion**

The Applicant respectfully submits that claims 1-41 are in condition for allowance.

In general, the Office Action makes various statements regarding the pending claims and the cite references that are now moot in light of the above. Thus, the Applicant will not address such statements at the present time. The Applicant expressly reserves the right, however, to challenge such statements in the future should the need arise (*e.g.*, if such statement should become relevant by appearing in a rejection of any current or future claim).

The Applicant respectfully submits that the Office Action has not established a *prima facie* case of anticipation or obviousness with respect to any of the pending claims for at least the reasons discussed above and requests that the outstanding rejections be reconsidered and withdrawn. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited to contact the Applicant.

If the Examiner has any questions or if the Applicant can be of any assistance, the Examiner is invited and encouraged to contact the Applicant at the number below.

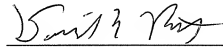
The Commissioner is authorized to charge any necessary fees or credit any overpayment to the Deposit Account of McAndrews, Held & Malloy, Account No. 13-0017.

Respectfully submitted,

McANDREWS, HELD & MALLOY, LTD.

Date: February 25, 2008

By:



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